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ABSTRACT

The paper states and proves three propositions regarding the usefulness of the ITED (Iowa Tests of Educational Development) in preparing adult basic education students to take the GED tests. The first proposition, that the ITED can be a useful practice test for GED candidates, is supported by the fact that the ITED tests are designed to measure the same skills as the GED and that the philosophy, objectives, subtest titles, and formats are similar in the two tests. Proposition 2, that performance on the ITED correlates positively with performance on the GED, and therefore can be used to predict scores on the GED, is supported by a series of investigations which demonstrated that the ITED Reading Comprehension test scores can be used to predict (with 75 percent confidence and within five points) an individual's average score on the GED in science, social studies, and literature. Proposition 3, that various criteria levels of GED performance are identifiable for various student goals, is demonstrated by the construction of two grids, one an item analysis and the other an individual profile sheet, which together can help students and instructors graphically analyze individual students' needs to attain skill levels meeting their chosen criteria levels. (Author/JR)

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DERIVING AND USING A TABLE OF GED SCORES EXPECTED FROM SPECIFIC ITED SCORES AND SOME ANCILLARY FORMS FOR ABCE STUDENTS

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DERIVING AND USING A TABLE OF GED SCORES EXPECTED FROM SPECIFIC ITED SCORES AND SOME ANCILLARY FORMS FOR ABCE STUDENTS

Elaine E. Brant

One goal of many adult basic education students is to earn a high school equivalency certificate by demonstrating adequate academic skills on the GED (General Educational Development Tests).[1] Consequently, some important functions of adult basic education programs become:

1. Providing counseling for students concerning their readiness to achieve certain levels on the GED tests and

2. Providing opportunity for students to develop academic skills and test-taking skills adequate for achieving certain levels on the GED tests.

To describe some tools and to offer some help in using the tools for these two tasks is the goal of the work described in this paper.

The General Educational Development Tests (GED) are a series of test batteries published over a period of years in many alternate forms (such as G, J, K, L, AA, BB, CC, etc.). In each form the battery consists of five subtests approximately two hours in length. The items consist of multiple choice questions. The number of items per test varies between subtests with each form and between forms. The five content areas always included in the GED are:

Subtest Number	Subtest Title
1)	Correctness and Effectiveness of Expression
2)	Interpretation of Reading Materials in the Social Studies
3)	Interpretation of Reading Materials in the Natural Sciences
4)	Interpretation of Literary Materials
5)	General Mathematical Ability

The raw scores of each GED test are converted to a standard score (t score) with 50 at the mean or 50th percentile and a standard deviation of 10. Scores at 28 and below fall at the 1st

percentile and scores of 72 and above fall at the 99th percentile. (See Figure 5).

Although states vary in their requirements for high school equivalency certification, most states have established the minimum level acceptable on any single test as at least a standard score of 35 and 225 as the minimum total of standard scores for all five GED tests (or an average of 45). Each time that a new form of the GED is published, it is normed on a sample of the current twelfth graders ready to graduate. Since a GED standard score of 45 is at the 31st percentile, it can be said that the usual required average score of 45 is above the level that would be achieved by about 30 percent of the twelfth graders approaching high school graduation.

This paper supports three propositions related to the usefulness of the ITED (Iowa Tests of Educational Development)[2] as a tool in adult basic and continuing education programs preparing adults to take the GED tests:

Proposition One:

> The ITED tests are designed to measure essentially the same skills that the GED tests are designed to measure and, therefore, can be useful as a practice test for GED candidates.

Proposition Two:

> Performance on the ITED correlates positively with performance on the GED, and therefore, can be used to predict scores on the GED.

Proposition Three:

> Various criteria levels of GED performance and corresponding approximate levels of performance on the ITED are identifiable, and therefore, item analyses and individual profiles of sub-skill performances on the ITED can be useful tools for goal setting and diagnostic prescriptive instruction to prepare individuals to attain specific criteria levels on the GED.

PROPOSITION ONE. The ITED tests are designed to measure essentially the same skills that the GED tests are designed to measure, and therefore, can be useful as a practice test for GED candidates.

The titles of the five subtests of any form of the GED can be compared to certain titles of subtests in the ITED. See Figure 1 below:

FIGURE 1.

COMPARISON OF GED AND ITED SUBTEST TITLES

GED, All Forms		ITED Forms X3s, Y3s, X4, Y4		ITED Forms X5, Y5
Test No.	Title	Test No.	Title	Title
1	Correctness and Effectiveness of Expression	3	Correctness and Appropriateness of Expression	Language Arts: Usage and Spelling
2	Interpretation of Reading Materials in the Social Studies	5	Ability to Interpret Reading Materials in the Social Studies	Two social studies passages in Reading Comprehension and Social Studies Background
3	Interpretation of Reading Materials in the Natural Sciences	6	Ability to Interpret Reading Materials in the Natural Sciences	Two science passages in Reading Comprehension and Science Background
4	Interpretation of Literary Materials	7	Ability to Interpret Literary Materials	Two literature passages in Reading Comprehension an Vocabulary
5	General Mathematical Ability	4	Ability to do Quantitative Thinking	Mathematics

(ITED Forms X4 and Y4 also include subtests on Social Studies background, Science Background, Vocabulary, Use of Sources which are not considered in this study.)

Statements about the emphasis or philosphy of the two test batteries can be compared. From the examiner's manual of the GED:

> The emphasis in these tests is placed on intellectual power rather than detailed content; on the demonstration of competence in using major generalizations, concepts and ideas, and on the ability to comprehend exactly, evaluate critically and to think clearly in terms of concepts and ideas.[3]

From the 1970 handbook for teachers and examiners for the ITED:

> Despite changes in test format, the philosophy underlying the survey is essentially the same as that of previous editions of the ITED...The rote recall of isolated information, such as rules of grammar and dates of historical events is given little or no emphasis. Rather the student must interpret and analyze material that is new to him, and apply broad concepts and

> generalized skills to situations not previously encountered in the classroom, utilizing the working knowledge he has already acquired in his studies and in daily life.[4]

That the philosophy and objectives, as well as the subtest titles and formats of these two test batteries are so similar may be partially explained by the fact that Dr. E. F. Lindquist[5] was primarily involved in developing the original forms of both batteries. Recent forms of both test batteries have retained their original style and purpose and have been equated to the original norms.

It also seems likely that both test batteries were influenced by the Taxonomy of Educational Objectives: Cognitive Domain,[6] by Leonard S. Feldt, editor of the ITED, stated in a letter to the author of this paper in May, 1971:

> Your inferences regarding the common elements in the ITED and GED are correct. While the same people did not do the writing of the exercises, the same over-riding philosophy has guided both batteries through successive editions. Thus, despite the use of different item-writing teams, the corresponding tests are, indeed, quite similar...We have tried, in cataloging our ITED items, to use a classification system close to that expounded by Bloom and his committee...We have departed a bit from the Taxonomy in the interest of communication.

Figure 2 below is a comparison of the reading comprehension subskills included in the ITED and in the GED to each other and to the categories within the Taxonomy of Educational Objectives: Cognitive Domain[6]. The analysis of the items in the GED tests was done using Form GG by a representative of the New Jersey State Department of Education.[7]

(See Page 5)

FIGURE 2

BLOOM'S TAXONOMY RELATED TO SKILLS
TESTED IN ITED AND GED

Bloom's Taxonomy[6]	ITED Reading Categories[4]	GED TESTS 2, 3, 4[7]
1.00 Knowledge 2.00 Comprehension 2.10 Translation	1. Explicitly restate ideas presented in the passage.	1. Literal--Questions that can be answered from information in the passage directly stated or restated slightly. 2. Inferential--Questions that can be answered by putting together bits of information from various parts of the passage. Subcategories include:
2.20 Interpretation	2. Summarize ideas and information in the passage	generalizations
2.30 Extrapolation	3. Grasp specific implications not directly presented in the passage.	drawing conclusions, inductive reasoning, predicting outcomes, or other comprehension labels, also understanding vocabulary in context.
3.00 Application	4. Apply ideas of the Passage to new situations: recognize valid examples and use background knowledge.	3. Critical--Questions that require application to another situation or knowledge of content not in the passage and knowledge of subject-related vocabulary.
4.00 Analysis 4.10 Elements 4.20 Relationships 3.30 Organizing Principles	5. Draw principal conclusions 6. Recognize the author's techniques, purpose and viewpoint	
5.00 Synthesis 6.00 Evaluation		

Figure 3 compares percentages of GED and ITED test items classified into the categories used in Figure 2, but now separated into the three reading content areas: Social Studies, Science, and Literature. These percentages were derived from three sources: 1. The New Jersey analysis of Form GG of the GED[7]; 2. the item analysis of reading comprehension categories as listed in the ITED Handbook for Teachers and Examiners[4]; 3. the item analysis of tests 5, 6, 7 in the Interpretive Supplement for ITED, forms X4 and Y4[8].

FIGURE 3

PERCENTAGE OF GED AND ITED TEST ITEMS GROUPED BY CATEGORIES

New Jersey Analysis of GED[7] Tests 2, 3, 4, Form GG[6]

Categories	Content Areas S.S.	Sc.	Lit.
Literal			
Social Studies	30%		
Science		41.5%	
Literature			10%
Inferential			
Social Studies	45.3%		
Science		30.8%	56%
Literature			
Critical			
Social Studies	6.7%		
Science		17%	
Literature			34%

(Totals do not equal 100% for Social Studies and Science because some questions were classified as reading charts.)

Item Analysis of ITED Reading Tests[4,8]

Categories	Forms X5, Y5 Tests 5, 6, 7) Content Areas SS	Sc	Lit	Form X4 (Reading Test Content Areas SS	SC	Lit
Restated Ideas						
Social Studies	28%			19%		
Science		0%			10%	
Literature			28%			29%
Main Ideas Implications						
Social Studies	39%			34%		
Science		44%			39%	
Literature			42%			14%
Applied Ideas Principal Concl. Author's Purpose						
Social Studies	33%			47%		
Science		56%			50%	
Literature			50%			57%

(Totals for X4 Science do not equal 100% because percents were rounded to the nearest whole percent.)

Although the proportion of questions in each category may vary from one form to another in either battery, it would appear that the same categories of questions are apt to appear in both batteries but not necessarily in the same proportions.

It has been reported to this writer and to other ABE teachers by many students who have taken both GED and ITED tests that the two sets of tests are very similar, that they are, in fact, the same kind of tests. Apparently, the general format of the tests

the style of the questions, the level of difficulty of the items, the technical vocabulary load, but not the specific content of passages or test items, seem noticeably similar to test takers.

The similarity between the two test batteries in both skills or content and style makes the ITED a valid choice as a practice test for use with adults preparing to take the GED. The fact that self-confidence and test-taking skills improve with practice, is in itself sufficient reason for using the ITED as a tool in a program for GED candidates. However, this paper suggests additional reasons and supportive data for them.

If it is indeed true, as proposed, that the GED and the ITED tests measure essentially the same skills, then it is not unreasonable to expect to find that individuals' performance on the two sets of tests would correlate positively. This brings us to the second proposition.

PROPOSITION TWO. Performance on the ITED correlates positively with performance on the GED, and therefore, can be used to predict scores on the GED.

In March, 1969, Luther Morgan[9], working with 198 adults in Minneapolis who took five of the ITED tests (Forms X3s) and the five GED tests (Form G), found that the scores obtained on the ITED correlated well enough with scores on the GED to justify using performance on the ITED to predict performance on the GED. (See Figure 4).

FIGURE 4

CORRELATION COEFFICIENTS BETWEEN GED AND ITED IN MORGAN'S STUDY[9]

Test Number in ITED, X3s	Test Number in GED, G	Subject Area	Correlation Coefficient
3	1	English	.78
5	2	Social Studies	.76
6	3	Science	.67
7	4	Literature	.76
4	5	Mathematics	.70
Composite	Composite	All Subjects	.88
5	Composite	Social Studies--All Subjects	.77

Morgan identified cut-off scores for the subtests of the ITED (English 12, Social Studies 15, Science 13, Literature 15, Math 13) to be used in counseling adults in this fashion: that those individuals with ITED scores at or above these levels be advised to take the GED tests, since from his findings it would be reasonable to expect that 90 percent of such persons would pass the GED in Minnesota (that is, have minimum scores of 35 or more and an average of 45 or more).

Since Social Studies ITED scores had the highest correlations with the total GED scores of any subtest, it was suggested that when testing time was limited, a success-failure prediction for the entire battery might be made from only a Social Studies score with 15 or above predicting success at a 90 percent level of confidence.

Morgan's cut-off scores and his 90 percent confidence level have value for counseling adults with regard to general readiness to take GED tests. However, this writer wanted to find a way to make use of ITED scores for more specific predictions than overall success-failure predictions. Probability of success or failure on the total battery is an important concern for many, but an individual who performs much better in some subject areas and poorer in others may need to be assured of at least 35 in his weak areas and 50 or more in strong areas in order to be able to average 45. The individual who plans to continue into college level work may wish to achieve 50 or 55 on the GED in several or all subject areas. Hence, a way was sought to be able to use an individual's ITED score in any given subject area to predict the individual's GED score in that subject area. In this paper are described several styles of such prediction tables which were devised and tried out. The differences between actual GED scores and the GED scores predicted from the individual's ITED scores using these various styles of prediction tables are reported in this paper.

The process of developing, trying out, revising and refining these ITED-GED prediction tables can be described in phases:

Phase One

A table for ITED Forms X4-Y4 based on equivalent percentiles of 12th grade, second semester norm groups was devised, tried out and evaluated.

Phase Two

A table for ITED Forms X4-Y4 based on the regression equation using correlations from Morgan's study was devised, tried out and evaluated.

Phase Three

A table for ITED Forms X5-Y5 based on the regression equation and correlations from Morgan's study was devised, tried out and evaluated.

Phase Four

It is proposed that a new set of correlations between ITED Forms X5-Y5 and the GED tests should be determined from which could be derived a new GED-ITED prediction table for ITED Forms X5-Y5.

The description of the procedures used in Phases 1-4 form the bulk of this paper.

PHASE ONE

A table based on equivalent percentiles for GED 12th Grade, second semester norms and ITED 12th grade, second semester norms was devised. This table was applied to 290 individual scores on ITED, Forms X4 or Y4. Actual and predicted GED scores were compared.

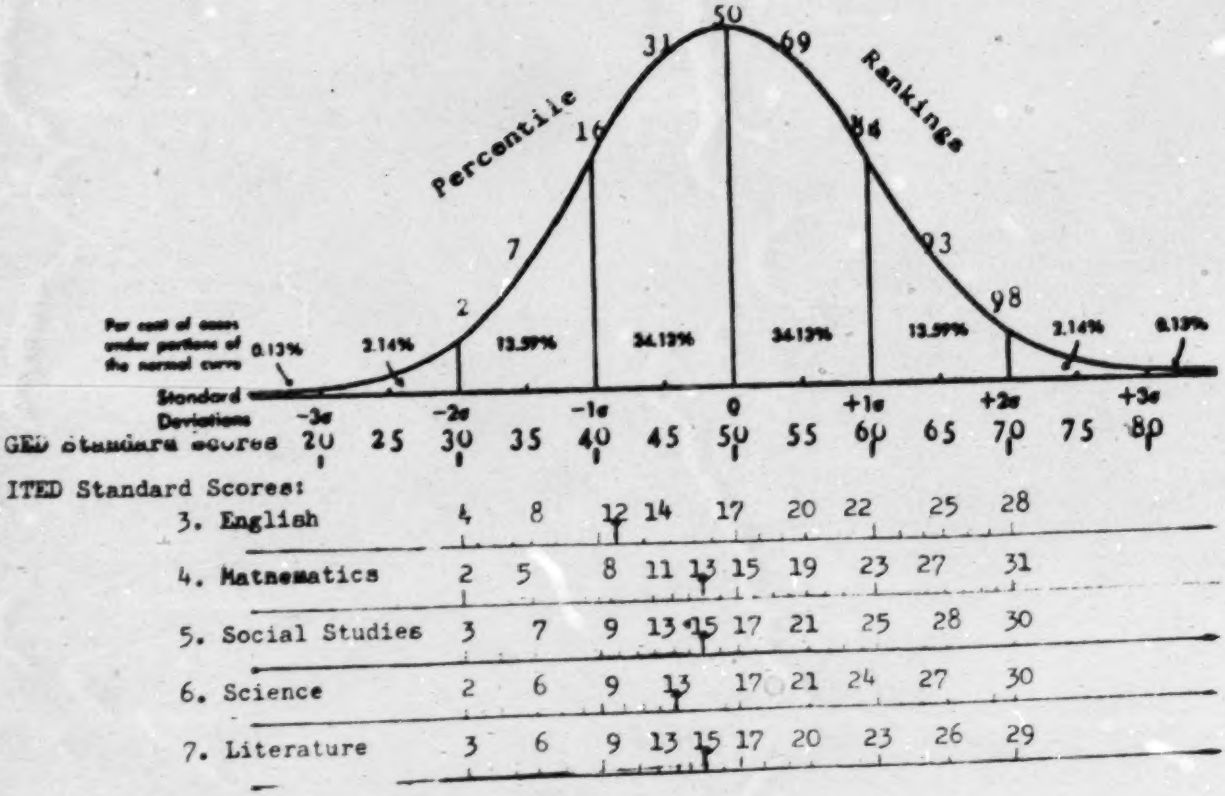
It was reasoned that 1. since Morgan's population had demonstrated high correlations between ITED and GED performance in each subject area (as high correlations as occur between alternate forms of many standardized tests); 2. since both the ITED and GED had been normed on populations of second semester 12th graders; 3. since for both batteries newer forms had been equated to previous forms' percentiles norms; 4. it was decided, somewhat arbitrarily, to devise a table by simply placing in juxtaposition the tables found in the manuals of the two tests presenting the percentiles for their respective standard scores. This would enable one to read for any given ITED standard score a corresponding standard score in the GED whose percentile rating was equivalent.

It is granted that this procedure in Phase One is not a sophisticated statistical procedure and that it is based on a number of unverified assumptions. But it was decided to try out the table, keep records of predictions and actual scores, and empirically evaluate the results. It was expected that a prediction with a range of scores would correspond to a larger percent of actual scores that would a single score prediction. Taking into consideration the standard errors of measurement of the two test batteries, an average of $\pm$ 5 standard scores was somewhat arbitrarily selected as a reasonable size band within which to expect some percent of of actual GED scores to fall. Just what percent of actual GED scores, would, in fact, fall within this $\pm$ 5 points of the predicted score would be ascertained later by comparing actual and predicted scores and computing the differences.

Figure 5 places some selected standard scores on the ITED in the various subject areas in juxtaposition with the corresponding GED standard scores falling at the same percentile rank. The complete table of predictions used in Phase One included these selected scores among others. The cut-off scores Morgan had identified for predicting success on the GED at a 90 percent confidence level are shown and marked by arrows.

FIGURE 5

PERCENTILE RANKS OF STANDARD SCORES
in GED AND ITED X4-Y4 SUBTESTS



It should be noted that the standard scores in the GED correspond to certain percentile ranks and that this relationship is consistent for all subtests and all forms of the GED. However, this is not true for the ITED. As Figure 5 shows, there are variations in the relationships between standard scores in the ITED for the various subtests. The Test Coordinators Handbook for the ITED gives an explanation of this phenomenon.

After an accumulation of scores for individuals in the St. Paul ABCE Program who took corresponding subtests on the ITED and the GED, the actual GED scores and the predictions based on Phase One table were compared. The computed differences were placed in a frequency distribution. Included were 137 test scores from 1971 and 153 test scores from 1974.

The differences between actual GED scores and predictions according to subtests were calculated and placed on separate frequency distributions. These and the composite frequencies are summarized in Figure 6 below.

FIGURE 6

DIFFERENCES BETWEEN ACTUAL GED SCORES
and PREDICTIONS USING ITED PERCENTILES

	N	Average of Differences	Range of Differences	Means of Differences	Percent of Differences Within ±5
English	63	3.48	-11 to +19	+0.30	86%
Social Studies	84	6.89	-22 to + 4	-6.80	40%
Natural Science	62	4.16	-12 to + 8	-2.35	61%
Literature	51	4.33	-13 to +10	-1.59	67%
Mathematics	30	5.30	-13 to + 7	-2.23	53%
Composite	290	4.96	-22 to +19	-2.89	61%

In evaluating the accuracy of predictions obtained from the table based on percentiles of GED and ITED second semester 12th grade norms, several observations can be made:

1. The average differences for the subtests tend to cluster around the composite average difference of 4.96 and to range from 3.48 in English to 6.89 in Social Studies;

2. The means of the differences tend to be negative or below zero except in English, that is, actual scores

2. (Continued)
tended to be below the predictions in four of the subtests; the means tend to cluster around the composite mean of -2.89, ranging from -6.8 in Social Studies to +0.3 in English;

3. Percentage of actual GED scores within ±5 points of predictions was 61 percent on the whole, but varied on the subtests from 40 percent in Social Studies to 86 percent in English.

Conclusion: From Figure 6 it appears that this system of predictions is most adequate for English, adequate for Literature and possibly Science, but less than desireable for Social Studies and Mathematics.

Perhaps the table for prediction based on percentiles for second semester 12th graders does not adequately represent what the performance of adults would be. Perhaps an adult population, such as the adult students of this study from St. Paul Adult Basic and Continuing Education, should be compared to another adult population rather than to national norms of second semester 12th graders. If another prediction system based on adult norms would reduce the differences between actual scores and predictions, this would be preferable.

PHASE TWO

A table for ITED Forms X4-Y4 based on the regression equations using correlations from Morgan's study of 198 adults taking the ITED and the GED was devised, tried out, and evaluated.

An estimated regression equation is the equation of the best fitting line for the plotted points on a graph for two sets of data, in this instance Morgan's two sets of scores, ITED scores and GED scores. The regression equation can be used to find a predicted value of y for any corresponding value of x. Applying a regression equation in this situation would make it possible to predict a GED standard score from an ITED standard score. It is possible to find the constants needed in a regression equation ($y=bx+a$) when the correlation coefficient, the two means, and the two standard deviations are known;

$$b=r\frac{S_y}{S_x}, \qquad a=M_y - r\frac{S_y}{S_x}M_x$$

Using the findings from Morgan's study, the values of b and a, x and y were derived for each subtest. See Figure 7.

FIGURE 7

STATISTICAL DATA OBTAINED FROM
AND DERIVED FROM MORGAN'S STUDY

Symbols	Meanings of Symbols	English	So. St.	N. Sci.	Lit.	Math	Composite
M_x	ITED Mean	16.11	20.30	20.15	19.69	17.40	18.73
S_x	ITED Standard Devia.	4.06	4.51	5.0	5.03	4.92	3.96
M_y	GED Mean	47.47	50.81	51.18	52.51	49.76	50.34
S_y	GED Standard Devia.	7.92	7.83	7.34	8.06	7.33	6.27
r	Correlation Coeff.	.78	.76	.67	.76	.70	.88
b	Slope	1.52	1.31936	.9836	1.21785	1.043	1.393
a	Axis intercept pt.	22.983	24.027	31.3613	28.53	31.61	24.23
S_{yx}	Stand. Error of Estimate	4.96	5.23	5.08	5.43	5.23	

A table was developed using the five appropriate regression equations that were derived from the findings of the Morgan Study. This table enabled predicting a specific GED score from a specific ITED score. When this table was applied to the same 290 ITED scores of the adult students used in Phase One of this study, a comparison could be made between the accuracy of prediction from the two tables. For the second table, that based on the regression equation, a standard error of estimate could be computed using the formula, $S_{yx}=S_y\sqrt{1-r^2}$. Applied to this situation, the standard error of estimate could provide a range within which 68 percent of the actual GED scores could be expected for any given predicted score. The computed standard errors of estimate (S_{yx}) for each of the subtests are as follows: English 4.96; Social Studies 5.23; Science 5.08; Literature 5.43; Mathematics 5.23. Note that the range of these errors of estimate is less than .5 and that each S_{yx} can be rounded to 5.0. Therefore, it can be said that the standard error of estimate for any of the subtests using the table based on the regression equations derived from Morgan's study is approximately ± 5. This means that 68 percent of the actual GED standard scores can be expected to fall within the range of ± 5 standard score points of the predicted score taken from that table. Notice that this rounded standard error of estimate was mathematically arrived by carefully computing standard errors of estimate derived from Morgan's five subtest standard deviations and correlation coefficients. It happens to be the same as the range of prediction that was rather arbitrarily arrived at and used with the previous table from Phase One based on second semester 12th grade percentile norms, also ± 5.

To evaluate the accuracy of prediction from this table based on the regression equation using Morgan's findings, the same population (137 socres from 1971 and 153 scores from in 1974 in the St. Paul Adult Basic and Continuing Education Program) was used. The new table provided new predicted scores, but the ITED scores and actual GED scores were the same as in Phase One. Again differences between actual GED standard scores and predicted GED standard scores were computed and placed on a frequency distribution. See Figure 8.

FIGURE 8

DIFFERENCES BETWEEN GED SCORES and PREDICTIONS USING REGRESSION EQUATIONS

	N	Average of Differences	Range of Differences	Mean of Differences	Differences Within ±5
English	63	3.72	- 9 to +20	+1.39	78%
Social Studies	84	5.05	-18 to + 8	-3.21	62%
Natural Science	62	2.66	- 8 to + 9	-0.10	86%
Literature	51	3.92	- 8 to +10	+1.41	73%
Mathematics	30	3.60	-10 to + 7	-0.20	83%
Composite	290	3.80	-18 to +20	-0.26	75%

In evaluating the accuracy of predictions using the table based on regression equations derived from Morgan's findings, comparisons can be made within Figure 8 and between Figures 8 and 6. It can be observed that:

1. The average differences tend to cluster around the composite average diffence of 3.80, with the range from 2.66 in Science to 5.05 in Social Studies; each average is less than the estimated error of estimate (See Figure 7);

2. The means of the differences and the composite of -0.26 tend to be much closer to zero, with four subtests within + 1.5, therefore, except for Social Studies (-3.21) for which actual scores tend to be below predictions, there is not a great tendency in the four subtests for the predictions to be either very high or very low;

3. The percentage of actual scores within ±5 points of prediction was 75 percent for the composite of all subtests, and was above what the standard error of estimate would expect (that is, 68 percent) for every subtest except Social Studies (62 percent), and was quite high in two cases, Science 86 percent, and Mathematics 83 percent;

Conclusion: This Phase Two system of prediction using regression equations derived from Morgan's findings appears to be more appropriate for an adult population than the Phase One system equating percentiles for second semester 12th graders used in Phase One. It appears to be more accurate than what would be expected from the standard error of measurement for all subtests except Social Studies which tends to be predicted somewhat high by the Phase Two table. Examining the frequency distribution for Social Studies, it appears that for the population in this study if the Social Studies predictions were lowered three points, the accuracy would be increased to a level comparable to the other subtests. Even so, it can be said that the accuracy of predictions was more uniform between subtests using the Phase Two table based on separate regression equations derived from Morgan's findings than when using the Phase One table based on percentiles. Even for Social Studies for which the predictions are still the least accurate, the accuracy is much improved from the results reported in Figure 6 for the Phase Two table based on percentiles. The English predictions are a little less accurate but quite acceptable.

PHASE THREE

A table for ITED Forms X5 and Y5 based on the regression equations and correlations from Morgan's study was devised, tried out and evaluated.

After the prediction tables for ITED Forms X4 and Y4 had been developed and used in St. Paul for about a year, new forms of the ITED were published which were much shorter and somehwat differently arranged in subtest content. (See Figure 1). Although the longer Forms X4 and Y4 simulate the length of the GED tests more nearly and thus have some advantages as practice tests, the X5 and Y5 forms with their shorter test administration time have that advantage when used for prediction purposes. The question remained if the tables developed for Forms X4 and Y4 standard scores could be applied to Forms X5 and Y5 standard scores with the same degree of confidence for predicting GED scores. Since no adult norms existed for Forms X5 and Y5 and no study provided correlations between GED scores and ITED Forms X5 and Y5 scores, it was decided arbitrarily to apply to Forms X5 and Y5 the Phase Two tables developed for Forms X4 and Y4, keep records and evaluate the accuracy of the predictions later. Several rather arbitrary decisions were made.

Since X5 and Y5 provide a Reading Comprehension score (based on two passages of Literature, two of Science, and two of Social Studies) that had been equated to the average scores of the three X4 and Y4 tests numbered 5 (Social Studies), 6 (Science), 7 (Literature), it was assumed that this score might be valuable to predict the average of GED tests 2, 3, and 4 in Social Studies, Science and Literature. If this worked, perhaps it would be possible with one hour of testing on the ITED to predict with adequate confidence what the average of three tests on the GED might be.

But whether or not specific scores on ITED X5 and Y5 for Social Studies and Science could be used to predict specific scores on the GED in Social Studies and Science was more problematic. The Social Studies and Science scores used by Morgan had been scores from tests 5 and 6 of an older form. These were tests on comprehending in these content areas. (See Figure 1). The test scores from tests 1 and 2 that tested background knowledge had not been used by Morgan, nor were they used in Phase One and Two of this study. However, for Forms X5-Y5 only raw scores, no separate standard scores, were available for the two reading passages in Social Studies and Science. Instead, these separate raw scores were to be added to the separate raw scores in the two background subtests in these two areas to convert to standard scores. It was not known how well these new kinds of scores would correlate with GED Science and Social Studies scores. It was decided to try arbitrarily applying Morgan's regression equations to the X5-Y5 scores in these subject areas also and then evaluate the predictions when an accumulation of scores for individuals taking the X5 or Y5 and the GED had been obtained.

Another problem was the fact that forms X5 and Y5 do not yield a separate Literature standard score as X4 and Y4 did. Although X5 and Y5 include two Literature passages there is no way to convert this raw score into a standard score. However, a close scrutiny and tally of the items in the vocabulary test convinced this writer that the choices for that test tended to be words that would be used to depict personal dramatic events as in literature much more often than science-related, math-related, or social studies-related content. Therefore, it was decided rather arbitrarily to treat the Total Treading score (Reading Comprehension plus Vocabulary) on the ITED X5-Y5 as an ITED Literature score and apply the Literature regression equation to predict the GED Literature score, then to evaluate the accuracy of the predictions later.

No problems were anticipated in the areas of English and Mathematics since these tests were not revised in the ways the others were. It could be expected that since they had been equated to the previous forms, the tables developed for English and Math in X4 and Y4 would apply similarly to forms X5 and Y5 although this would be tried out and evaluated for a limited number of cases also.

A new population was used for Phase Three. The population included 61 students, some were hospital employee ABE students (17 from Cambridge, 12 from Faribault, and 8 from St. Paul) and the remaining 24 were ABCE students from St. Paul. The differences between actual scores and the predictions were computed and placed in frequency distributions. A summary of these appear in Figure 9.

FIGURE 9

DIFFERENCES BETWEEN GED SCORES AND PREDICTIONS USING A TABLE APPLYING TO ITED X5 AND Y5 THE REGRESSION EQUATIONS DERIVED FROM AN ADULT NORM GROUP
(Morgan's Study)

	N	Average of Differences	Range of Differences	Mean of Differences	Differences Within +5	Within ±5 or Above
English	21	4.48	-11 to +17	-0.19	67%	90%
Social St.	59	4.08	- 9 to +12	+1.34	73%	92%
Natural Sc.	53	5.02	-11 to +13	+2.96	62%	96%
Literature	52	4.02	- 9 to +13	+2.71	73%	98%
Mathematics	8	3.50	- 7 to + 6	+0.50	75%	88%
Composite	192	4.48	-11 to +17	+2.09	69%	93%
Reading*	55	3.48	-11 to +8.7	+1.02	76%	89%

*ITED Y5 Reading Comprehension Standard Score related to the average of the three GED reading tests (Social Studies, Science, Literature)

It appears from a comparison of Figure 9 with Figures 6 and 8 that the Phase Three system of Prediction worked reasonably well:

1. The average differences tend to cluster around the composite average of 4.48, which is near a midpoint between averages in Phase One and Two; the amount of the range is smaller than in Phase One and Two, from 3.50 in Mathematics to 5.02 in Science; each average difference is less than the standard error of estimate for that subtest. (Compare Figure 7);

2. The means of the differences tend to be positive or above zero except in English, that is, actual scores tended to be above the predictions in four of the subtests; two of the means are very near zero and none of them deviates as much as 3 points;

3. The percentage of actual scores within ±5 points of prediction was 69 percent for the composite of all subtests, very near the 68 percent expected according to the standard error of estimate, and the range was very narrow from 62 percent in Science to 75 percent in Math;

4. The percentage of actual scores falling within +5 points of prediction or above was high overall, 93 percent for the composite and a very narrow range, from 88 percent in Mathematics to 98 percent in Literature, all were above the 85 percent to be expected from the standard error of estimate.

Conclusion: On the whole, Phase Three predictions were more accurate and uniform than in Phase One and about the same in accuracy as Phase Two.

The most interesting finding is probably that the X5-Y5 Reading Comprehension score predicts the average of the three GED reading tests so well. This enables one, after one hour of testing, to predict with 75 percent confidence within ±5 points what an individual's average score may be on the GED in Science, Social Studies, and Literature. This information can be put to practical use for diagnostic purposes as described under Proposition Four.

PHASE FOUR

It is proposed that a new set of correlations between ITED Forms X5-Y5 and the GED tests should be determined from which could be derived a new GED-ITED prediction table for ITED forms X5-Y5.

Using the same population as in Phase Three, 192 scores from 61 students, some initial work was done toward determining correlations and other data of the kind Morgan derived for 198 adults in Minneapolis, (See Figure 7), but it was decided to continue to accumulate scores before completing the work. However, some tentative results with two pairs of subtests can be reported.

A correlation using the Pearson Product Moment Correlation, $r = \frac{\Sigma xy}{\sqrt{(\Sigma x^2)(\Sigma y^2)}}$ was made of 45 average scores for Science, Social Studies and Literature in the GED with ITED Standard Scores in Reading Comprehension on Form Y5. The correlation coefficient is 77, which is significant at the .005 level. (Applying the test for significance, $t = \frac{r}{\sqrt{1-r^2}} \sqrt{n-2}$, to this correlation for the N of 45, the probability is .005 or less, that is, significant at the .5 percent level, or 1 in 200 chances of the result occurring from chance). A correlation of the total Science score in ITED X5-Y5 with GED Science showed a correlation of only .56, but this is also significant at the .005 level. (Compare the data in this paragraph with Morgan's in Figure 7).

It is proposed that a larger number of cases be accumulated to define more precisely the correlations between raw scores in certain test segments of ITED X5-y5 and the standard scores in the GED subject areas. (See Figure 10).

FIGURE 10

PROPOSED PAIRING OF ITED X5-Y5 TEST SEGMENTS AND GED TESTS
for DETERMINING CORRELATIONS BETWEEN SCORES

Standard Scores in GED Test Subject Areas	Raw Scores for ITED Forms X5 and Y5 Subtests and Test Segments	Number of Scores Accumulated At This Date
Average of Social Studies, Science, and Literature	Reading Comprehension (including 2 passages in each of these: Social Studies, Science, Literature)	58
Social Studies	2 Social Studies passages from the Reading Comprehension subtest	55
Social Studies	Social Studies Background Subtest	48
Social Studies	Total of 2 Social Studies passages from Reading Comprehension and Social Studies Background Subtest	52
Science	2 Science passages from the Reading Comprehension Subtest	55
Science	Science Background Subtest	50
Science	Total of 2 Science passages from Reading Comprehension and Science Background Subjest	51
Literature	2 Literature passages in the Reading Comprehension Subtest	54
Literature	Vocabulary Subtest	49
Literature	Total of 2 Literature passages from Reading Comprehension Subtest and Vocabulary Subtest	49
Literature	Total of Reading Comprehension and Vocabulary or Total Reading	49
English	Language Arts: Usage and Spelling	21
Math	Mathematics	8

When correlation coefficients with a larger population have been determined for the above relationships and the best correlations for each content area chosen then new regression equations could be derived and new prediction tables could be made specifically for ITED X5 and Y5 in these subject areas. Hopefully, these would be an improvement over the tables used in Phase Three.

Also to the extent that these new regression equations would cause changes in the prediction table, there might be a need also to revise the profile form developed and described under Proposition Three.

PROPOSITION THREE. Various criteria levels of GED performance and corresponding approximate levels of performance on the ITED are identifiable, and therefore, item analyses and individual profiles of subskill performances on the ITED can be useful tools for goal setting and diagnostic prescriptive instruction to prepare individuals to attain specific criteria levels on the GED.

While the criteria of performance on the GED that qualify one for a high school equivalency are not uniform in the 50 states, the levels 35, 40, 45, 50 are the numbers usually used to designate minimums and averages in standard scores.

There is evidence that standard scores of 50 and 55 may be useful criteria for college level performance. An extensive study by D'Amico and Schmidt[10] at Indiana University focussed on 478 GED veterans enrolled there. Students having at least an average standard score of 50 tended to establish average to above-average scholastic records. A tally was made by the author of scores earned by 30 civil service employees in hospitals in Minnesota who took the ITED and achieved at or above the level predicting 55 on the GED. They also took CLEP (College Level Examination Program) exams, and 85 percent exceeded the minimum level required for earning college credit, the 25th percentile.

For these various purposes described, the levels of 35, 40, 45, 50 and 55 on the GED are useful goals and are used in Form A grid as criteria levels. Using Phase Three tables for ITED Y5 and X5, the raw scores on each subtest which predicted these levels on the GED were determined. Particualarly for the Social Studies, Science and Literature areas, proportionate raw scores in the comprehension subskills and content areas for each of these levels were calculated. The raw scores chosen in this fashion were placed on a grid making a form (Form A, Appendix) usable as an individual profile sheet. Another form (Form B, Appendix) was devised for making an item analysis.

To use these forms, the following steps need to be taken:

1. Identify a student goal and a corresponding criterion level.

2. Emphasize this criterion level on Form A by drawing a line across the grid at that level.

3. Circle each number on Form B of items missed on ITED.

4. Count the number of correct items in each subskill and content area and enter these totals in the appropriate places on Form B.

5. Plot the totals from Form B onto the grid in Form A.

6. Interpret the profile.

The positions of the points plotted on the heavy vertical bars are the total raw scores for subtests. Their position indicates whether the predicted performance on the GED is below, at, or above that criterion level. It might be decided for an individual with a prediction at least one criterion level above the goal level in all areas that no further instruction is required to meet the goal.

For example, an individual's goal on a certain test may be 45 and if his predicted GED score from ITED performance is 50, his chances are probably better than 85 percent that he can reach his goal on the GED. The standard error of estimate indicates that 68 percent of the cases with such a prediction would be expected to get scores between 45 and 55 and half of the remaining 34 percent would be expected to be above 55, therefore 85 percent, that is, 68 percent + ½(34 percent), would be expected to be above 45, the criterion level chosen. (See the last column in Figure 9 for the percentages occuring in Phase Three).

For an individual with points on these heavy bars at or below the criterion level set as the goal, a closer examiniation of the profile would be useful. For this individual, any points on the regular vertical lines plotted on or below his criteria level, these points indicate possible weak skill or background areas. Any points above the criteria level represent skills or background areas that can be considered adequate for that criterion level. With this information at hand, appropriate learning experiences and instructional materials can be chosen to fit an individual's needs.

Summary and Conclusions:

This paper has attempted to establish three propositions:

A. It was proposed that certain subtests of the ITED measure essentially the same skills in a style of testing quite similar to the GED tests, therefore, parts of the ITED are a useful set of practice tests for GED candidates.

B. It was proposed that since performances on the corresponding subtests of the ITED and GED correlate positively and well, therefore,

   1. A specific score on a subtest of the ITED can be used to predict a specific score in a corresponding subject area test in the GED battery; and

   2. The accuracy of such predictions which can be described in certain ways showing their variations according to the type of prediction table used and the forms of the ITED used were reported in Phases One, Two and Three of this study. A Phase Four is also proposed.

C. It was proposed that various criteria levels of GED performance are identifiable for various student goals and the corresponding performance levels on the ITED in terms of the raw scores on Forms X5 and Y5 are also identifiable. These raw scores can be used on a grid to help students and instructors make a graphic analysis of individual student needs in order to attain skill levels to meet their chosen criteria levels. Two forms, Forms A and B, are offered to accomplish the item analysis and profile as proposed.

Most attention in this paper was focused on Proposition Two. The work of finding a system or systems for accurately predicting GED scores from ITED scores has been done in three phases and more research is proposed in a Phase Four.

Phase One. When Forms X4 and Y4 of ITED were used with a table of predictions based on percentiles of GED and ITED second semester 12th grade norms, the actual GED scores tended to differ from predictions almost 5 points on the average. Taken as a whole, the actual scores tended to be below the predictions nearly 3 points, however, 61 percent of the actual scores were within ± 5 points of the predictions, with considerable variation between subtests. This system of predictions appears most adequte for English, adequate for Literature and possibly Science, but less than desireable for Social Studies and Math.

Phase Two. When a table of predictions for Forms X4 and Y4 based on regression equations derived from Morgan's findings was used with the same population and the same ITED and GED scores as in Phase One, the actual GED scores tended to differ from these predictions almost 4 points on the average. The actual scores tended not to be noticeably higher or lower than predictions, as a rule, except in the case of Social Studies for which actual scores tended to be below predictions as a rule. However, 75 percent of the actual scores were within ± 5 points of the prediction which is above the percent expected from the standard error of estimate for all subtests except Social Studies. This system of prediction appears to be more appropriate for an adult population than the system equating percentiles for second semester 12th grade used in Phase One. The accuracy of predictions was more uniform between subtests using the Phase Two table based on separate regression equations derived from Morgan's findings than when using the table based on percentiles as in Phase One. Even for Social Studies, for which the predictions are still the least accurate, the accuracy is higher than in Phase One. The English predictions are a little less accurate, but quite acceptable.

Phase Three. When new forms of the ITED, Forms X5 and Y5 were used with a new population of adults, the table of predictions from Phase Two developed from and for earlier forms were applied quite arbitrarily to the new forms, even though some subtests were no longer entirely comparable. Nevertheless, the Phase Three system of prediction worked quite well. On the average the actual GED scores tended to differ from predicted scores about 4½ points, midway between the averages in Phase One and Two- There was a slight tendency for the actual scores to be above the predictions in all subtests except English, but none of them deviated as much as 3 points on the average. For the composite of all subtests, 69 percent of the actual scores were within ±5 points of predictions with little variation between subtests. On the whole, Phase Three predictions were more accurate and uniform than in Phase One and about the same in accuracy as Phase Two. The most valuable finding is probably that for an adult population, the X5 - Y5 Reading Comprehension scores predicted the average of the three GED reading tests with 75 percent confidence within ±5 points what an individual's average score would be on the GED in Science, Social Studies and Literature.

Phase Four. Some tentative findings were offered concerning relationships between certain raw scores on ITED X5 and Y5 subtests with GED standard scores using a small population of scores.

However, it is suggested that a more extensive study be done with a larger population and raw scores on more subtests and segments on the ITED as related to the GED tests. Although the table of prediction for Phase Two worked well in Phase Three, there is still a need to develop a new table of prediction for ITED Forms X5 and Y5 based on correlations between ITED X5-Y5 raw scores and GED standard scores. When and if this were done, some refinements might also be made on Form A, the profile sheet for goal setting and individualized diagnostic prescriptions. In the meantime, Form A (along with Form B) is quite usable with the Table A or B from Phase Three for programs using Form X5 or Y5 of the ITED. These tables and forms are offered as tools to help with the following tasks in Adult Basic and Continuing Education Programs:

1. Provide counseling for students concerning their readiness to achieve certain levels on the GED tests and

2. To provide systematic help in developing skills for achieving specified levels on the GED tests.

LIST OF RESOURCES

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Phase One Table
Table to convert ITED X4 Raw Scores to ITED Standard Scores to ITED Percentiles to GED Standard Scores Equivalent to those Percentiles

TEST 3 ENGLISH				TEST 4 MATH				TEST 5 SOC. STUDIES			
Raw Sc.	St. S.	%	GED	RAW	S.S.	%	GED	RAW	S.S	%	GED
0-27	8.0	0-5	35-	0-11	8.0-	11	39	0-19	8.0-	1-9	35
28-29	8.0	7	35	12	8.0	15	39	20-21	8.0	13	38
30-31	9.0	10	37					22	10.0	18	41
32-34	10.4	14	40	13	9.0	19	41	23	10.6		
35-37	11.8	19	41	16	11.0	29	43	24	11.8	22	43
38	12.5	21	42	17	11.5	32	45	25	12.0	27	44
39	12.7	24	43	18	12.0	35	46				
40-42	13.5	27	44					26	13.0	31	45
43-45	14.0	30		19	13.3	41	48	27	13.6	33	46
45	14.3	31	45								
46	14.5	34	46					28	14.2	37	37
47	15.0	37	47								
48	15.3	38		20	14.2	46	49	29	15.1	41	48
49	15.6	39									
50	15.8	42	48	21	14.6	50	50	30	15.5	42	
51	16.4	44									
52	16.7	45	49	22	15.5	51	51	31	16.2	44	49
53	16.8	47		23	15.7	53		32-33	17.0	50	50
54-55	17.2	50	50	24	16.0	56	52	33	17.5	51	
56-57	17.6	53	51					34-35	18.0	55	51
58-60	17.9	57	52	25	17	60	53	36-37	19.0	60	52
61-63	19	63	53	26	18	64	54	38-39	20	64	53
64-65	20	69	55	27-28	19	68	55	40-41	21	68	54
66-68	21	75	56	29-30	20	72	56	42-44	22	73	56
69-71	22	81	58	31-32	21	76	57	45-47	23	77	57
72-74	23	86	60	33	22	80	58	48-50	24	81	59
75-76	24	89	62	34-35	23	83	60	51-53	25	85	60
77-79	25	92	64	36-37	24	85	61	54-56	26	88	62
80-82v	26	95	66	38	25	87	62	57-58	27	92	64
83+	27+	97+	67+	39-40	26	90	63	59-61	28	94	66
				41	27	92	64	62+	29+	96+	67+
				42-43	28	94	66				
				44+	29+	96+	67+				

Page 2 of Phase One Table

I.T.E.D. Scores

Test 6- Science				Test 7- Literature			
RAW	S.S.	%	GED	RAW	S.S.	%	GED
0-18	8.0-	0-9	< 35	0-20	8.0-	0-9	<35
19-20	8.0	12	38	21-22	8.0	12	38
21	9.0	16	40	23	9.2	15	40
22-23	10.2	20	42	24-25	10.3	19	42
24	11.6	24	44	26-27	12.0	23	44
25	12.4	29	45	28	12.7	28	45
26	13.0	33	46	29	13.0	32	46
27	13.6	36	47	30	13.7	34	
28	14.2	38	48	31	14.6	36	47
29	14.	42		32	14.7	39	
30	15.2	44	49	33	15.2	42	48
31	15.5	46		34	15.5	44	
32	16.0	48	49	35	16.0	47	49
33	16.4	50	50	36	16.4	49	50
34-36	17.0	53	51	37-38	16.9	52	51
37-38	18	58	52				
39-40	19	63	53	39-40	18	57	52
41-42	20	66	54	41-43	19	63	53
43-44	21	70	55	44-46	20	69	55
45-47	22	74	56	47-49	21	74	56
48-49	23	78	58	50-52	22	79	58
50-52	24	82	59	53-54	23	83	59
53-55	25	86	60	55-57	24	86	60
56-57	26	89	62	58-59	25	89	62
58-60	27	92	64	60-62	26	92	64
61-62	28	94	66	63-65	27	95	66
63+	29+	96+	67+	66+	28+	97+	67+

S.S = Standard Score

RAW = Raw Score

% = Percentile

GED = Equivalent performance on GED

EB 3

Conversion Table to convert ITED-X5--Raw Score to Grade Levels, Standard Scores, Percentiles for Grade 12 Second Semester, and Equivalent GED Standard Scores, using

Comprehension Raw Score	SS	%ile 12	GED	Grade Equiv. Approx.
0-5	1		< 29	
6	2		30	
7	3		32	
8	4	1	33	
9	5	2	34	
10	6	3	35	
11-12	7	5	36	
13-14	8	8	37	
15-16	9	12	38	
17-18	10	16	39	
19-20	11	21	40	
21-22	12	27	42	
23-24	13	32	43	
25	14	37	44	
26-27	15	42	45	
28-29	16	47	46	
30	17	52	47	
31-32	18	57	49	
33-34	19	62	50	
35-36	20	67	51	
37	21	72	52	
38-39	22	77	53	
40	23	81	54	
41-42	24	85	55	
43-44	25	89	56	
45-46	26	92	57	
47	27	94	58	
48-49	28	96	60	
50	29	97	61	
51	30	98	62	
52	31	99	63	
53	32			
54	33			

Vocabulary Raw Score	%ile 12	GED
0-4		
5	1	
	2	
6	3	
	4	
	5	
8	7	
7	9	
0	11	
10	14	
11	17	
12	20	
13	25	
14	30	
15-16	36	
17-18	42	
19-20	48	
21-23	54	
24-25	60	
26-27	66	
28-29	71	
30-31	76	
32-33	81	
34	85	
35	88	
36	91	
37	94	
38	96	
39	98	
40	99	

Comp.+Voc.=Lit. Raw Score	SS	%ile 12	GED
0-10	1		< 29
11	2		31
12	3		32
13-14	4	1	33
15	5	2	34
16-17	6	3	36
18-20	7	5	38
21-23	8	8	39
24-26	9	12	40
27-30	10	16	41
31-33	11	21	42
34-37	12	27	43
38-40	13	32	44
41-43	14	37	45
44-46	15	42	46
47-50	16	47	47
51-53	17	52	48
54-57	18	57	49
58-60	19	62	50
61-64	20	67	51
65-67	21	72	52
68-70	22	77	53
71-73	23	81	54
74-76	24	85	55
77-78	25	89	56
79-81	26	92	57
82-84	27	94	58
85-87	28	96	59
88-89	29	97	60
90-91	30	98	61
92	31	99	62
93-94	32		

Soc. St. (Rdg.&Bkgd) Raw Score	SS	%ile 12	GED	Grade Equiv. Approx.
0-6	1		< 25	
7	2	1	27	
8	3	2	28	
9	4	2	29	< 5.1
10	5	3	31	5.3
11	6	4	32	5.7
12	7	6	33	6.3
13	8	8	34	6.8
14	9	10	35	7.5
15	10	13	37	8.1
16-17	11	16	38	8.5
18	12	19	40	9.2
19-20	13	23	41	9.9
21	14	28	42	10.5
22	15	34	44	10.9
23-24	16	41	45	11.5
25-26	17	48	46	11.9
27	18	53	48	12.7
28	19	57	49	12.9
29-30	20	62	50	
31-32	21	67	51	
33	22	72	53	
34-35	23	77	54	
36-37	24	81	55	
38	25	85	57	
39	26	88	58	
40	27	91	59	
41-42	28	93	61	
43	29	95	62	
44-45	30	97	63	
46	31	98	65	
47-48	32	99		

Column heading GED=Equivalent GED Standard Scor
Predicted using Regression Equation based on Mo
gan's Study. In Comprehension, GED column indica
expected average on 3 Rdg. tests.

Phase Three Table, Page 2

Regression equation based on Morgan's Study, and showing Morgan's 90-100% Range of Predicting Success on GED from Performance on ITED. (Indicated by vertical line I).

Science (Rdg. + Bkgd) Raw Score	SS	%ile 12²	GED	Grade Equiv. Approx.
0-7	1		32	
8	2	1	33	
9	3	2	34	
10	4	3	35	<5.1
11	5	4	36	5.5
12	6	5	37	6.1
13	7	7	38	6.4
14	8	9	39	6.8
15	9	12	40	7.2
16	10	15	41	7.6
17	11	19	42	8.1
18	12	22	43	8.5
19-20	13	26	44	9.1
21	14	30	45	9.5
22-23	15	35	46	9.9
24	16	41	47	10.4
25-26	17	48	48	11.2
27-28	18	54	49	11.8
29-30	19	59	50	12.6
31-32	20	65	51	12.9+
33-34	21	70	52	
35	22	75	53	
36-37	23	80	54	
38-39	24	85	55	
40-41	25	89	56	
42-43	26	92	57	
44	27	94	58	
45	28	96	59	
46	29	98	60	
47	30	99	61	
48	31		62	

Spelling Raw Score	%ile 12²
0-3	1
4	2
5	3
6	4
7	5
8	7
9	10
10	13
11	17
12	20
13-14	25
15-16	30
17-18	37
19-20	44
21-22	51
23-24	57
25	63
26-27	69
28-29	75
30-31	81
32	86
33	89
34	92
35	95
36-37	97
38	98
39	99
40	

Language (Usage + Sp.) Raw Score	SS	%ile 12²	Eq. GED St. Sc.	Grade Equiv. Approx.
0-11	1		<24	
12-13	2		26	
14	3	1	28	
15-16	4	2	29	
17-18	5	3	31	
19	6	4	32	<5.1
20-21	7	5	34	5.5
22-23	8	7	35	6.2
24-25	9	10	36	6.9
26-27	10	13	38	7.5
28-29	11	17	40	8.1
30-32	12	20	41	8.8
33-35	13	25	43	9.4
36-38	14	30	44	9.9
39-42	15	37	46	10.4
43-46	16	44	47	11.1
47-50	17	51	49	11.8
51-53	18	57	50	12.8
54-57	19	63	52	12.9+
58-60	20	69	53	
61-63	21	75	55	
64-66	22	81	56	
67-69	23	86	58	
70-72	24	89	59	
73-75	25	92	61	
76-77	26	95	62	
78-80	27	97	64	
81-83	28	98	65	
84-86	29	99	67	
87-89	30		68	
90-92	31		70	
93-94	32			

Math Raw Score	SS	%ile 12²	GED	Grade Equiv. Approx.
0-1	1	1	29	
2	2	2	30	
3	3	3	32	<5.1
4	4	4	34	5.5
	5	6	35	6.1
5	6	8	39	6.4
	7	11	40	6.7
6	8	15	41	7.4
7	9	19	42	8.1
8	10	23	43	8.7
9	11	29	44	9.7
10	12	35	45	10.5
11-12	13	41	46	11.2
13	14	46	47	11.8
14	15	51	48	12.8
15	16	56	49	12.9+
16	17	60	50	
17	18	64	51	
18-19	19	68	52	
20	20	72	53	
21-22	21	76	54	
23-24	22	80	55	
25	23	83	57	
26	24	85	58	
27-28	25	87	59	
29	26	90	60	
30	27	92	61	
31	28	94	62	
32	29	96	63	
33	30	97	64	
	31	98		
34	32	99		
35	33			
36	34			

EB, 3/75

FORM A

INDIVIDUAL PROFILE SHEET
of Performance in Reading
on the ITED--the Iowa Tests
of Educational Development

Name _____

Initial Test Date _____ Form _____

Retest Date _____ Form _____

Comprehension Sub-skills | **Content Areas**

	Restated Ideas	Main Ideas	Specific Implications	Applied Ideas	Principle Conclusions	Author's Purpose	Total Comprehension (Lit. + Soc St. + Sc)	Vocabulary	Total Reading	Comp in Literature	Comp. in Social Studies	Background in Soc. St.	Total Social Studies	Comp. in Natural Science	Background in Nat. Sc.	Total Natural Science
Total Possible (Y5/X5)	10	6	13	6/7	6/7	11	54	40	94	18	18	30	48	18	30	48
GED Stand. Score Criteria Levels:																
55 (level of 25%ile on CLEP)	8	5	9	5	5	8	40	33	73	13	14	24	39	13	22	35
50 (initial college level 130)	7	4	8	4	4	7	34	28	62	11	11	19	30	12	18	30
45 on 5 Tests (Average usually required to Pass)	5	3	6	3	3	6	26	16	42	9	9	16	25	8	13	21
40	4	2	4	2	2	4	18	11	30	5	6	10	16	6	11	17
35 (Minimum usually required on single tests to pass)	2	1	3	1	1	2	10	6	15	3	3	6	9	4	6	1

FORM B

EB 4-75

IOWA TESTS OF EDUCATIONAL DEVELOPMENT Skills Analysis, Form Y-5

Trainee_____;Last grade____;Date_____;Group_____

READING SKILLS IN CONTENT AREAS

Comprehension	Items Right	Tot.	Social Studies	Science	Literature
1. Restate ideas		10	23,48,49,51,52		1,4,28,30,36
2. Summarize main ideas		6	18,22,47	10,12	32
3. Grasp specific implications	___	13	20,21,25,53	11,13,37, 38,40,44	2,7,33
4. Apply ideas,new examp.		6	19,26,27	41,45,46	
5. Draw principal conclusions	___	8	54	14,15,16,17 39,42,43	
6. Author's purpose, techniques	___	11	24,50		3,5,6,8,9,29, 31,34,35
Raw Score: Total		___/54	___/18	___/18	___/18
Standard Score:		___; _____%ile; _____Predicted SS on GED; ___G.L.			

Vocabulary ___/40;___%ile; + Total from Rdg.=___; ___S.S.; ___%ile; ___Pred
(The vocabulary test relates most to the subject of literature.) ___G.L.

BACKGROUND INFORMATION IN CONTENT AREAS

Social Studies			Science		
Government	___/8	4,8,10,12 17,24,26,30	Scientific Meth.	___/4	11,20,24,26
Economics	___/8	1,5,7,9,11 13,18,27	Biology	___/8	2,7,12,13,15 19,21,29
Sociology	___/6	2,3,15,19,23,28	Physics	___/8	3,8,10,22,23 27,28,30
U.S.History	___/4	14,20,21,29	Chemistry	___/5	5,6,16,18,25
World Hist.	___/4	6,16,22,25	Earth Sc.,Astr.	___/5	1,4,9,14,17
Raw Score: Total___/30 + ___from Rdg.=___;SS___;___%ile;___ Predicted SS on GED: ___G.L.			Raw Score: Total___/30 + ___from Rdg.=___;SS___;___%ile;___ Predicted SS on GED;___G.L.		